

# Lichens of the Cape Parry and Melville Hills Regions, Northwest Territories

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Two hundred and thirty-six species of lichens and two lichen fungus parasites are reported from the Cape Parry and Melville Hills regions, Northwest Territories, Canada. New to North America are *Lecania disceptans*, and *Verrucaria ossiseda*; new to Canada are *Lecidea subduplex*, *Psorinia conglomerata* and *Rinodina lyngei*. Major range extensions are reported for *Aspicilia supertegens*, *Bacidia siberiensis*, *Ionaspis annularis*, *Lecanora pulicaris*, *Lecidea conferenda*, *L. phaeopelidna*, *L. sublimosa*, *Phaeophyscia decolor* and *Stereocaulon botryosum*.

Key Words: Lichens, Cape Parry, Melville Hills, Northwest Territories.

The Cape Parry and Melville Hills regions, located in the central northern edge of the continental arctic portion of North America (Figure 1), are important in providing information on the distribution of the American arctic lichens, such as whether or not the ranges extend that far from the eastern Arctic or represent easterly ranges of the Beringian (western arctic) elements in the flora. The comparative inaccessibility of these regions has left their lichen flora largely unstudied until now. The nearest lichen studies are those to the west at the Reindeer Preserve (Ahti et al. 1973), and to the east at Coppermine (Thomson 1970). G.W.S. had the opportunity to collect lichens as part of a natural resource inventory from the Cape Parry region during 1978 and from the Melville Hills region during 1990.

## Description of Areas

Cape Parry lies within the northern Interior Plains Province, except for the northeastern corner which is within the Arctic Coastal Plains Province (Bostock 1970). The physiography was described in detail by Mackay (1958a, 1958b, 1963), covering all aspects of physical geography. The physiographic regions were later summarized and renamed by Yorath et al. (1969) to conform with geographic rather than geomorphic terminology.

The Melville Hills rise gradually to a maximum height of 876 m ASL. The hills are drained by the Hornaday River and Brock River towards the west, eroding deep canyons near the coast. Bluenose Lake, a large (400 km<sup>2</sup>) lake on the eastern flank of Melville Hills, is drained northward by the Crocker River. The hills are largely composed of nearly horizontally bedded Precambrian sandstone, with local basaltic intrusive rocks. Poorly consolidated sedimentary rocks of Cretaceous age occur on the lowlands west of Melville Hills.

The Melville Hills were not glaciated during the latest Wisconsin glaciation (Dyke and Prest 1987). Ice flow pattern suggests that the late-Wisconsin glacier ice, advancing from the southeast, was deflected around Melville Hills (Craig 1960). Wood, identified as *Pinus strobus* type (R. Mott, personal communication), was found on the shores of a large lake at the headwaters of the largest tributary of the Hornaday River. This wood was dated as >41 000 years by the Geological Survey of Canada (GSC-5115). The central portion of Melville Hills has no glacial erratics, suggesting that perhaps a small portion of the uplands may have totally escaped glaciation. Although the understanding of glacial time sequence of this area requires more studies, it seems that the Melville Hills were free of ice for a much longer period of time than the rest of the neighboring Arctic mainland.

The Cape Parry region contains elements of polar semi-desert, arctic tundra, tundra-forest transition, and subarctic woodlands. The region lies between the floristically different regions of the upper Mackenzie Valley, where many Beringian species occur, and the central mainland arctic region.

The Melville Hills region is wholly within the arctic tundra region. The vegetation is influenced by local elevation and exposure. In the well-protected valleys of the lower Hornaday and Brock rivers tall willow shrubs and continuous tundra vegetation grows. At higher elevations the vegetation cover is discontinuous, with low, ground-hugging shrubs, forbs and sedges. The wet sites are dominated by sedges and cottongrass, as well as mosses. In the exposed bedrock and rock rubble areas crustose and umbilicate lichens dominate, with only scattered

dwarf shrubs and mosses. More complete descriptions of the vegetation are in the other papers of the series on this region (Cody et al. 1992; Scotter and Vitt 1992).

The climate of both regions is characterized by long cold winters, short cool summers, and relatively low precipitation. At Clinton Point on the Amundsen Gulf coast, for example, the mean annual temperature is 11.2°C, and the mean July temperature is 7.4°C (Environment Canada 1982), but frost can occur even during the summer months. The mean cumulative annual degree days above 5° is 203. The mean annual precipitation is 181.5 mm, of which 85.0 cm occurs as snow.

### List of Localities

The numbers in the list of species refer to the following localities. The approximate location of each site is given as well as the approximate elevation in metres (m).

#### Cape Parry (CP)

1. Polar semi-desert communities, and seepage areas near Cape Parry, 70° 10'N, 124° 40'W, 0–75 m.
3. *Salix-Carex* tundra near Paulatuk, 69° 21'N, 124° 07'W, 0–10 m.
4. *Salix* grass, *Carex*-moss, and dwarf heath communities near pingo, 69° 20'N, 124° 55'W, 15–35 m.
5. *Dryas-Carex* community near the Hornaday River, 65° 05'N, 123° 07'W, 250 m.
6. Plant communities near La Ronciere Falls, Hornaday River, 69° 05'N, 122° 51'W, 215–275 m.
7. *Dryas-Carex* and *Picea glauca*-lichen communities, 68° 27'N, 124° 06'W, 275 m.
8. Lichen-heath and white spruce-lichen, 67° 38'N, 123° 27'W, 355 m.
9. White spruce-lichen and *Dryas* communities, 67° 29'N 122° 37'W, 410 m.
11. *Picea glauca-Ledum* and limestone cliff communities, near the Horton River, 68° 49'N, 124° 25'W, 105–200 m.
12. White spruce-lichen community near the Anderson River, 68° 06'N, 125° 24'W, 230 m.
13. Deflated sand plain with white spruce, black spruce-lichen and *Carex* communities, 68° 28'N, 126° 07'W, 170 m.
14. *Dryas* tundra polygonal community, 69° 20'N, 125° 54'W, 275 m.
15. *Dryas-Carex* and *Carex* communities on undulating till and low-center polygons, 69° 41'N, 125° 08'W, 12 m.
18. Lichen, *Carex*, and white spruce-lichen communities on a peat plateau and lacustrine plain, 68° 49'N 128° 17'W, 230 m.

23. *Dryas-Carex* community on dissected till uplands, 70° 08'N, 127° 29'W, 0–35 m.

#### Melville Hills (MH)

2. "Hornaday Lake", 68° 42'N, 120° 48'W, 513 m.
4. 68° 36'N, 120° 24'W, 580 m.
5. 68° 26'N, 119° 50'W, 560 m.
7. Hornaday River, 68° 33'N, 120° 46'W, 490 m.
8. 68° 44'N, 121° 03'W, 660 m.
10. Hornaday River, 68° 36'N, 120° 41'W, 510 m.
11. 68° 09'N, 120° 32'W, 570 m.
13. Croker River Canyon, 69° 06'N, 119° 30'W, 340 m.
15. "Conglomerate Hill", 69° 21'N, 119° 57'W, 30 m.
17. 69° 18'N, 119° 56'W, 180 m.
19. 68° 27'N, 121° 10'W, 550 m.
22. 69° 48'N, 121° 53'W, 2 m.
23. Lower Brock Lagoon, 69° 31'N, 123° 13'W, 2 m.
24. 69° 08'N, 121° 50'W, 700 m.
29. Confluence of Hornaday River and a river from an unnamed lake, 68° 20'N, 121° 57'W, 380 m.
30. La Ronciere Falls, 69° 08'N, 122° 52'W, 215–275 m.
31. Pearce Point, 69° 45'N, 122° 38'W, 2 m.
32. Hornaday Delta, 69° 22'N, 123° 56'W, 5 m.
34. 68° 35'N, 120° 05'W, 620 m.
37. 68° 33'N, 121° 05'W, 520 m.
39. 69° 11'N, 121° 49'W, 800 m.
40. Brock Canyon, 69° 21'N, 122° 48'W, 300 m.
41. Lower Brock River, 69° 21'N, 123° 04'W, 60 m.

All specimens are filed at the herbarium of the University of Wisconsin (WIS). Nomenclature mainly follows Egan (1987, 1989, 1990) except in the Umbilicariaceae (Llano 1950) and *Usnea*.

#### List of Species

- Acarospora veronensis* Massal. MH-8.  
*Adelolechia pilati* (Hepp) Hertel & Hafellner MH-2.  
*Agyrophora lyngei* (Schol.) Llano MH-7.  
*Alectoria nigricans* (Ach.) Nyl. CP-1; CP-15.  
*Alectoria ochroleuca* (Hoffm.) Massal. CP-3; MH-10; MH-30.  
*Anaptychia setifera* Räsänen CP-1.  
*Arctoparmelia separata* (Th. Fr.) Hale MH-11.  
*Aspicilia alboradiata* (Magnusson) Oxner MH-2.  
*Aspicilia caesiocinerea* (Nyl. ex Malbr.) Arnold MH-34.  
*Aspicilia candida* (Anzi) Hue MH-5; MH-39.  
*Aspicilia disserpens* (Zahlbr.) Räsänen in Huusk MH-8; MH-15; CP-1; CP-3.  
*Aspicilia elevata* (Lynge) Thomson MH-2.  
*Aspicilia lesleyana* (Darb.) Thomson MH-2; CP-1.  
*Aspicilia myrinii* (Fr. in Myrin) B. Stein CP-1.  
*Aspicilia perradiata* (Nyl.) Hue MH-5.  
*Aspicilia plicigera* (Zahlbr.) Räsänen MH-10.  
*Aspicilia rykaipiae* (Magnusson) Oxner MH-8.  
*Aspicilia supertegens* Arnold MH-15; CP-1. These records fill a gap between Ellesmere Island and Alaska.

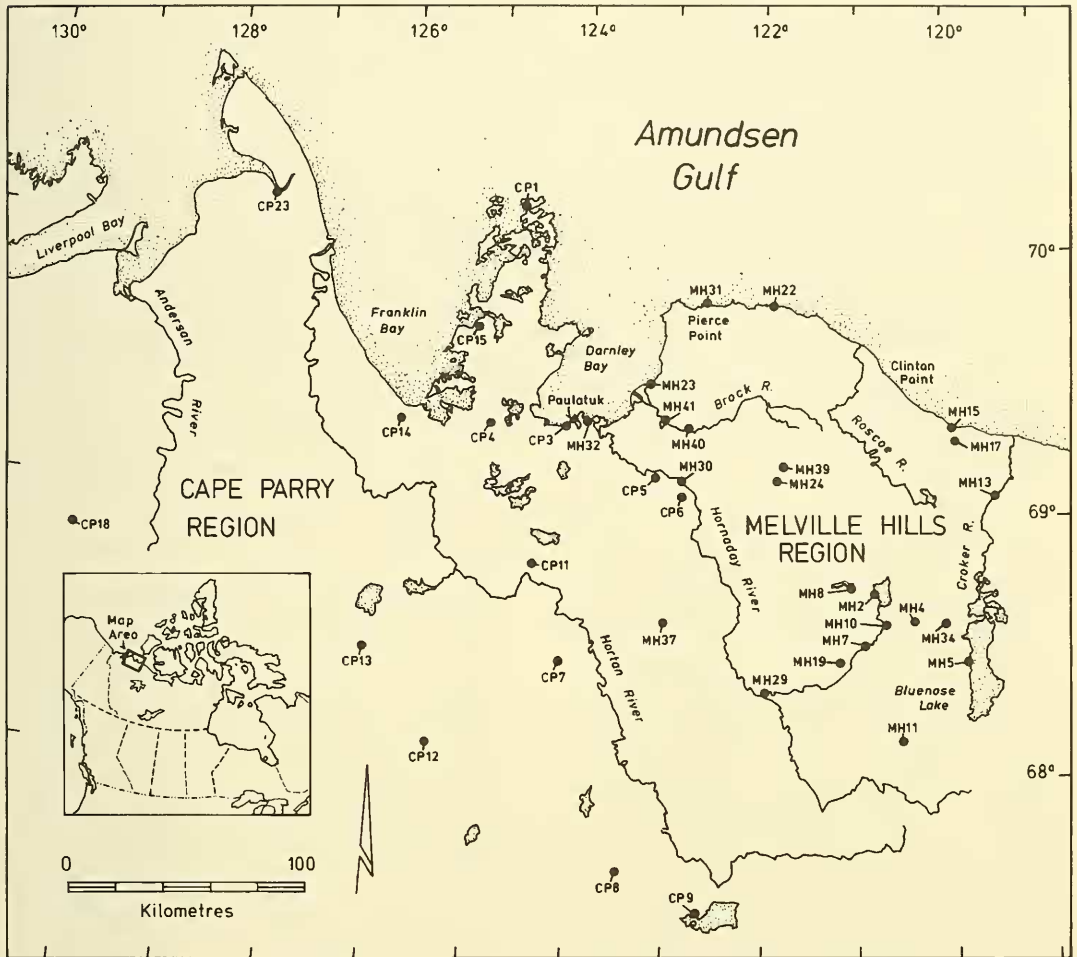


FIGURE 1. Locations of survey sites in the Cape Parry (CP) and Melville Hills (MH) regions, Northwest Territories.

*Arctoparmelia separata* (Th. Fr.) Hale MH-11.  
*Bacidia bagliettoana* (Mass. & DeNot. in Mass.) Jatta MH-2; CP-1.  
*Bacidia siberiensis* (Willey) Zahlbr. MH-32. This specimen on bark extends the range of this amphiberingian species eastwards from Lawrence Island in the Bering Sea.  
*Bacidia sphaeroides* (Dickson) Zahlbr. CP-8.  
*Bryocaulon divergens* (Ach.) Kärnef. MH-10; CP-3; CP-9; CP-20.  
*Bryoria lanestrus* (Ach.) Brodo & D. Hawksw. CP-9.  
*Bryoria nitidula* (Th. Fr.) Brodo & D. Hawksw. MH-5; CP-9.  
*Bryoria simplicior* (Vainio) Brodo & D. Hawksw. CP-8; CP-12; CP-13.  
*Buellia notabilis* Lynge MH-2.  
*Buellia papillata* (Sommerf.) Tuck. MH-7; MH-22; CP-1.  
*Buellia punctata* (Hoffm.) Massal. MH-23.

*Caloplaca ammiospila* (Ach.) H. Olivier CP-9; CP-11.  
*Caloplaca borealis* (Vainio) Poelt CP-4.  
*Caloplaca cinnamomea* (Th. Fr.) H. Olivier MH-22.  
*Caloplaca crenularia* (With.) Laundon CP-22 on bone.  
*Caloplaca discoidalis* (Vainio) Lynge CP-1.  
*Caloplaca fraudans* (Th. Fr.) H. Olivier MH-2; MH-8; MH-10.  
*Caloplaca holocarpa* (Hoffm.) Wade MH-23; MH-32; CP-4.  
*Caloplaca jungermanniae* (Vahl) Th. Fr. MH-23.  
*Caloplaca tiroliensis* Zahlbr. MH-15.  
*Caloplaca tominii* Savicz MH-17.  
*Candelariella aurella* (Hoffm.) Zahlbr. MH-2; MH-5; MH-22; MH-23; CP-1 on old wood and bones.  
*Candelariella dispersa* (Räsänen) Hakul. MH-39. Over a *Placynthium*.

- Candelariella terrigena* Räsänen CP-11.  
*Catapyrenium lachneum* (Ach.) R. Sant. CP-1.  
*Cetraria cucullata* (Bellardi) Ach. MH-10; MH-30; CP-1; CP-7; CP-9.  
*Cetraria delisei* (Bory ex Schaerer) Nyl. CP-1.  
*Cetraria ericetorum* Opiz MH-7.  
*Cetraria fastigiata* (Del. ex Nyl. in Norrl.) Kärnef. CP-23.  
*Cetraria islandica* (L.) Ach. MH-15; CP-6; CP-9.  
*Cetraria nigricascens* (Nyl.) in Kihlman) Elenkin MH-5.  
*Cetraria nivalis* (L.) Ach. MH-7; CP-1; CP-13.  
*Cetraria tilesii* Ach. MH-5; MH-7; MH-10; MH-11; CP-11.  
*Cladina mitis* (Sandst.) Hustich MH-30.  
*Cladina stellaris* (Opiz) Brodo MH-30.  
*Cladonia amaurocraea* (Flörke) Schaerer MH-40.  
*Cladonia carneola* (Fr.) Fr. CP-1.  
*Cladonia coccifera* (L.) Willd. MH-10; MH-24; MH-30; CP-8.  
*Cladonia deformis* (L.) Hoffm. MH-11.  
*Cladonia gracilis* (L.) Willd. ssp. *gracilis* MH-11.  
*Cladonia pleurota* (Flörke) Schaerer MH-11.  
*Cladonia pocillum* (Ach.) O. Rich. MH-5; MH-10; MH-41; CP-11; CP-21.  
*Cladonia pseudorangiformis* Asah. MH-22. This is a northern record for this species.  
*Cladonia subulata* (L.) Weber ex Wigg. CP-8.  
*Cladonia sulphurina* (Michaux) Fr. CP-8.  
*Coelocaulon muricatum* (Ach.) Laundon CP-13.  
*Collema fuscovirens* (With.) Laundon MH-7.  
*Collema glebulentum* (Nyl. ex Crombie) Degel. MH-10.  
*Collema limosum* (Ach.) Ach. MH-15. A rare species seldom collected in the American arctic, the nearest station is at Anderson River to the west.  
*Collema tenax* (Swartz) Ach. MH-2; CP-1.  
*Collema undulatum* Laurer ex Flotow var. *granulosum* Degel. MH-2; MH-17; MH-40.  
*Coniosporium lecanorae* Jaap CP-1. A lichenicolous fungus on *Lecanora saligna* on old wood.  
*Cyphelium inquinans* (Smith in Smith & Sowerby) Trevisan CP-7. On old wood.  
*Dactylina arctica* (Richardson) Nyl. MH-7; MH-11; CP-3.  
*Dactylina madreporiformis* (Ach.) Tuck. MH-31.  
*Dactylina ramulosa* (Hook.) Tuck. MH-4; MH-7; MH-20; MH-37.  
*Dermatocarpon minutum* (L.) Mann. MH-10; CP-11.  
*Dimelaena oreina* (Ach.) Norman MH-2; MH-15; MH-29; CP-1.  
*Diploschistes muscorum* (Scop.) R. Sant. CP-11.  
*Ephebe lanata* (L.) Vainio CP-1.  
*Evernia divaricata* (L.) Ach. MH-10.  
*Evernia mesomorpha* Nyl. CP-7.  
*Evernia perfragilis* Llano MH-4; MH-5; MH-7; MH-10; MH-15; CP-1.  
*Farnoldia jurana* (Schaerer) Hertel CP-11.  
*Fistulariella almqvistii* (Vainio) Bowler & Rundel CP-3.  
*Fulgensia bracteata* (Hoffm.) Räsänen MH-22; CP-1.  
*Hypogymnia austerodes* (Nyl.) Räsänen CP-7.  
*Hypogymnia bitteri* (Lyngé) Ahti CP-7; CP-8; CP-9.  
*Hypogymnia subobscura* (Vainio) Poelt MH-15; CP-1; CP-7; CP-8.  
*Hypogymnia vittata* (Ach.) Parr CP-7.  
*Icmadophila ericetorum* (L.) Zahlbr. CP-13.  
*Ionaspis annularis* Magnusson CP-1. A rare species previously known from Novaya Zemlya, Sweden, Greenland, and Devon and Baffin Islands in the Canadian Arctic.  
*Ionaspis melanocarpa* (Krempelh.) Arnold MH-10.  
*Kiliasia athallina* (Hepp) Hafellner MH-5. The thallus over which this specimen is growing appears to be *Aspicilia* and so this specimen could represent *Kiliasia episema* (Nyl.) Hafellner which differs only in its parasitism.  
*Lecania arctica* Lyngé MH-2.  
*Lecania disceptans* (Nyl.) Lyngé CP-1; CP-11. This species is new to North America. It was described from the Chukotsk Peninsula, Konyam Bay region of Siberia based on collections of the Vega Expedition of 1878-1879 (Nylander, Flora 1884: 212). It has very large 2-celled spores, 15-25 x 7-8  $\mu\text{m}$  according to Nylander (19-22 x 8-12.5  $\mu\text{m}$ , in these specimens) with a very thick, 6  $\mu\text{m}$ , gelatinous epispore.  
*Lecania fuscella* (Schaerer) Körber MH-7.  
*Lecanora atosulphurea* (Wahlenb.) Ach. MH-2; CP-1.  
*Lecanora behringii* Nyl. MH-23 on bone; CP-1 on old wood, CP-1 on bone.  
*Lecanora cenisia* Ach. CP-1 on old wood.  
*Lecanora circumborealis* Brodo & Vitik. CP-4, CP-7 on twigs.  
*Lecanora crenulata* Hook. MH-10; CP-1 on bone.  
*Lecanora epibryon* (Ach.) Ach. MH-2; MH-5; MH-7; MH-10; MH-11; MH-15; CP-1 numerous collections, CP-11; CP-23.  
*Lecanora hagenii* (Ach.) Ach. MH-10.  
*Lecanora marginata* (Schaerer) Hertel & Rambold MH-2; MH-8; MH-10; MH-15; MH-22; MH-34; CP-1 very abundant collections, duplicates will be distributed.  
*Lecanora nordenskiöldii* Vainio MH-8; CP-1.  
*Lecanora polytropa* (Hoffm.) Rabenh. MH-10; MH-22 on old leather strap; MH-31; MH-34.  
*Lecanora pulicaris* (Pers.) Ach. CP-4 on *Salix*. A far north record for this species.  
*Lecanora rupicola* (L.) Zahlbr. MH-15; MH-39; CP-1.  
*Lecanora saligna* (Schrader) Zahlbr. MH-10; MH-22; MH-29; MH-32; CP-1.  
*Lecanora zosteriae* (Ach.) Nyl. MH-2; MH-23; CP-1 (with *Pertusaria corticea*).

- Lecidea atrobrunnea* (Ramond ex Lam. & DC.) Schaer. MH-5; CP-1.
- Lecidea botryosa* (Fr.) Th. Fr. CP-1.
- Lecidea conferenda* Nyl. CP-1. This is a westward range extension from Greenland and Newfoundland.
- Lecidea hypnorum* Libert. CP-8.
- Lecidea lactea* Flörke ex Schaerer MH-5; CP-1.
- Lecidea lapicida* (Ach.) Ach. MH-2; MH-5; MH-8; MH-22; CP-1.
- Lecidea lithophila* (Ach.) Ach. MH-29; MH-39; CP-1.
- Lecidea lulensis* (Hellbom) Stizenb. MH-24.
- Lecidea paupercula* Th. Fr. MH-39; CP-1.
- Lecidea phaeopelidna* Vainio CP-4 on Salix bark. The only previous collection in the American arctic was at the Reindeer Preserve.
- Lecidea plana* (Lahm. in Körber) Nyl. MH-39.
- Lecidea ramulosa* Th. Fr. MH-22; MH-40; CP-1 numerous collections on the seepages; CP-6; CP-11.
- Lecidea subduplex* (Nyl.) Nyl. CP-1. Previously reported from Europe, Greenland and Alaska. This species needs to be added to the Egan checklists.
- Lecidea sublimosa* Nyl. CP-1, on bone. A rare species known from Ellesmere Island, usually on humus.
- Lecidea tessellata* Flörke MH-15; MH-22; MH-34.
- Lecidea theodori* Lyngé MH-39.
- Lecidea turgidula* Fr. CP-7 on old wood.
- Lecidea umbonata* (Hepp) Mudd MH-8; MH-39; CP-1.
- Lecidella euphorea* (Flörke) Hertel MH-23.
- Lecidella spitzbergensis* (Lyngé) Hertel & Leuck. MH-2.
- Lecidella stigmataea* (Ach.) Hertel & Leuck. MH-5; MH-10; MH-15; MH-22; CP-1.
- Leciographa muscigenae* (Anzi) Rehm. MH-7; MH-10, parasitic on *Physconia muscigena*.
- Lopadium pezizoideum* (Ach.) Körber MH-11.
- Masonhalea richardsonii* (Hook.) Kärnef. CP-8; CP-9.
- Megaspora verrucosa* (Ach.) Hafellner & Wirth MH-10; MH-23; CP-6.
- Melanelia incolorata* (Parr) Essl. MH-15; CP-1.
- Melanelia septentrionalis* (Lyngé) Essl. MH-11; CP-3; CP-4; CP-7.
- Melanelia stygia* (L.) Essl. MH-11.
- Micarea assimilata* (Nyl.) Coppins CP-1, 10 collections; CP-23.
- Micarea denigrata* (Fr.) Hedl. MH-10 on twigs.
- Micarea melaena* (Nyl.) Hedl. CP-1.
- Nephroma arcticum* (L.) Torss. MH-37.
- Nephroma expallidum* (Nyl.) Nyl. CP-7; CP-23.
- Ochrolechia frigida* (Swartz) Lyngé MH-4; MH-37; CP-1; CP-9; CP-15; CP-23 (f. *itheleporoides* (Th. Fr.) Lyngé).
- Ochrolechia inaequatula* (Nyl.) Zahlbr. CP-1.
- Ochrolechia upsaliensis* (L.) Massal. MH-7; MH-11; MH-40; CP-5; CP-15.
- Orphniospora lapponica* (Räsänen) Hafellner & R.W. Rogers MH-11.
- Orphniospora moriopsis* (Massal.) D. Hawksw. MH-24.
- Parmelia omphalodes* (L.) Ach. MH-5; MH-11.
- Parmelia sulcata* Taylor MH-5; CP-7.
- Parmeliella tryptophylla* (Ach.) Müll. Arg. MH-10; CP-1.
- Parmeliopsis ambigua* (Wulfen in Jacq.) Nyl. CP-7; CP-8.
- Peltigera aphthosa* (L.) Willd. MH-5; MH-10; MH-11; MH-24; CP-21; CP-23.
- Peltigera canina* (L.) Willd. MH-41.
- Peltigera didactyla* (With.) Laundon CP-3; MH-4.
- Peltigera lepidophora* (Nyl. ex Vainio) Bitter MH-40.
- Peltigera malacea* (Ach.) Funck. MH-40.
- Peltigera neckeri* Hepp ex Müll. Arg. MH-41.
- Peltigera polydactyla* (Necker) Hoffm. MH-10; MH-15; MH-19.
- Peltigera ponojensis* Gyel. CP-4.
- Peltigera rufescens* (Weis.) Humb. MH-2; MH-4; MH-7; MH-10; MH-11; MH-15; MH-23; MH-24; MH-30; MH-37; MH-40.
- Peltigera scabrosa* Th. Fr. MH-15; CP-1.
- Pertusaria bryontha* (Ach.) Nyl. MH-4 sterile but probably this.
- Pertusaria coriacea* (Th. Fr.) Th. Fr. CP-1 (with *Lecanora zosteræ*).
- Pertusaria dactylina* (Ach.) Nyl. MH-15; CP-14.
- Pertusaria panyrga* (Ach.) Massal. MH-10; MH-17; CP-7; CP-23.
- Phaeophyscia endococcinea* (Körber) Moberg CP-1 on wood.
- Phaeophyscia kairamoi* (Vainio) Moberg CP-1. This circumboreal species is known from Alberta, British Columbia and Greenland.
- Phaeophyscia sciastra* (Ach.) Moberg MH-5; MH-10; MH-15; CP-1.
- Physcia adscendens* (Fr.) H. Olivier CP-22.
- Physcia aipolia* (Ehrh. ex Humb.) Fühnr. CP-4; CP-6.
- Physcia caesia* (Hoffm.) Fühnr. MH-2; MH-5; MH-7; MH-10; CP-1. One on bone.
- Physcia dubia* (Hoffm.) Lettau CP-1.
- Physconia detera* (Nyl.) Poelt CP-1.
- Physconia muscigena* (Ach.) Poelt MH-4; MH-5; MH-7; MH-10; MH-15; MH-17; MH-21; MH-22; MH-30; MH-37; CP-1; CP-11.
- Polyblastia cupularis* Massal. MH-2 with *Rhizocarpon chioneum*; CP-1.
- Polyblastia gelatinosa* (Ach.) Th. Fr. MH-15; CP-1.
- Polychidium muscicola* (Swartz) S. F. Gray MH-30; CP-11.
- Polysporina urceolata* (Anzi) Brodo MH-5. This collection is a range extension for this arctic alpine species which was known from British

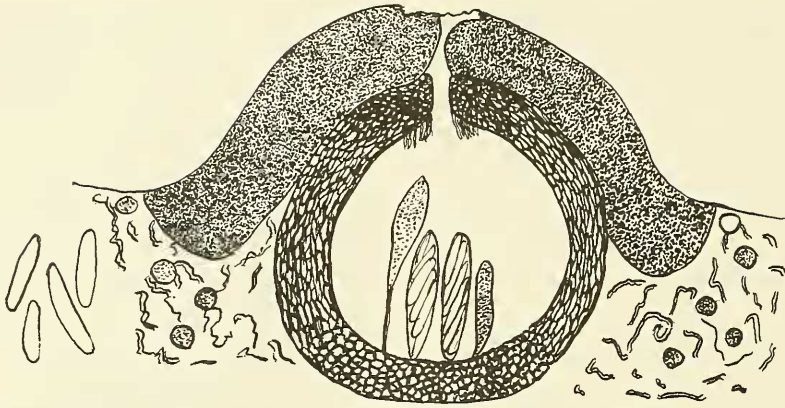


FIGURE 2. Diagram of cross section of perithecium of *Verrucaria ossiseda*. At the left are four spores 5-7  $\mu\text{m}$  long.

- Columbia and Bathurst Island in the Northwest Territories.
- Porpidia flavocaerulescens* (Hornem) Hertel & Schwab MH-39.
- Porpidia macrocarpa* (DC in Lam. & DC) Hertel & Schwab MH-5.
- Porpidia thomsonii* Gowan CP-1.
- Protoblastenia rupestris* (Scop.) Steiner MH-39.
- Protoparmelia badia* (Hoffm.) Hafellner MH-8; MH-39.
- Pseudephebe minuscula* (Nyl. ex Arnold) Brodo & D. Hawksw. MH-24.
- Psora decipiens* (Hedwig) Hoffm. MH-2; MH-7; MH-10; CP-6; CP-11.
- Psora himalayana* (Church. Bab.) Timdal MH-10; MH-13; MH-40.
- Psora rubiformis* (Ach.) Hook. in Smith CP-6.
- Psorinia conglomerata* (Ach.) G. Schneider CP-6; CP-11. New to the Canadian Arctic but previously known from Greenland and Arizona (Thomson and Nash 1976) as well as Europe.
- Pyrenopsidium granuliforme* (Nyl.) Forss. MH-2.
- Rhizocarpon alpicola* (Anzi) Rabenh. MH-5.
- Rhizocarpon chioneum* (Norman) Th. Fr. MH-2 (with *Polyblastia cupularis*); MH-10; CP-1.
- Rhizocarpon ferax* Magnusson CP-1.
- Rhizocarpon geminatum* Körber MH-2; MH-5; MH-8; MH-10; MH-15; MH-22; MH-31; CP-1; CP-3.
- Rhizocarpon geographicum* (L.) DC. MH-5; MH-8; MH-10; MH-22; MH-24; MH-34; MH-39; CP-1.
- Rhizocarpon hochstetteri* (Körber) Vainio MH-31.
- Rhizocarpon superficiale* (Schaerer) Vainio MH-15.
- Rhizoplaca chrysoleuca* (Smith) Zopf MH-7; MH-19.
- Rhizoplaca melanophthalma* (Ram. in Lam. & DC.) Leuck. & Poelt MH-5.
- Rinodina archaeva* (Ach.) Arnold MH-32.
- Rinodina bischoffii* (Hepp) Massal. MH-2.
- Rinodina lyngei* Sheard ined. CP-1. Possibly new to Canada.
- Rinodina roscida* (Sommerf.) Arnold MH-5; MH-7; CP-1; CP-11.
- Rinodina turfacea* (Wahlenb.) Körber MH-11; MH-31.
- Schaereria tenebrosa* (Flotow) Hertel & Poelt CP-1.
- Solorina bispora* Nyl. MH-15; CP-6.
- Solorina saccata* (L.) Ach. MH-10; MH-30; CP-15.
- Sphaerophorus fragilis* (L.) Pers. CP-5.
- Sphaerophorus globosus* (Huds.) Vainio CP-15.
- Sporastatia polyspora* (Nyl.) Grumm. CP-1.
- Sporastatia testudinea* (Ach.) Massal. MH-2; MH-8; MH-15; MH-22; MH-31; CP-1.
- Staurothele drummondii* (Tuck.) Tuck. MH-2; MH-5, MH-8; MH-10; MH-34; CP-1.
- Stereocaulon arcticum* Lynge. CP-23.
- Stereocaulon botryosum* Ach. em. Frey CP-9. This fills an important gap between Alaska and Chesterfield Inlet.
- Stereocaulon paschale* (L.) Hoffm. CP-13.
- Teloschistes arcticus* Zahlbr. CP-1.
- Thamnolia subuliformis* (Ehrh.) Culb. MH-10; MH-15; MH-17; MH-40.
- Thamnolia vermicularis* (Swartz) Ach. ex Schaer. MH-5; MH-7; CP-1; CP-6; CP-15.
- Thrombium epigaeum* (Pers.) Wallr. MH-10.
- Toninia caeruleonigricans* (Lightf.) Th. Fr. CP-1.
- Toninia lobulata* (Sommerf.) Lynge MH-10.
- Tremolecia atrata* (Ach.) Hertel MH-2; MH-22; CP-1.
- Tuckermannopsis pinastri* (Scop.) Hale CP-7.
- Umbilicaria arctica* (Ach.) Nyl. MH-39.
- Umbilicaria havasii* Llano CP-1.
- Umbilicaria hyperborea* (Ach.) Hoffm. MH-11; MH-39; MH-40; CP-1.
- Umbilicaria probovidea* (L.) Schrader CP-1.
- Umbilicaria torrefacta* (Lightf.) Schrader MH-40.
- Umbilicaria virginis* Schaerer MH-15; MH-19.

- Usnea compacta* (Räsänen) Mot. (= *U. glabrescens* (Nyl. ex Vainio) Vainio) CP-9.
- Usnea substerilis* Mot. (= *U. lapponica* Vainio acc. Egan 1987) CP-7; CP-8; CP-9.
- Verrucaria arctica* Lynge MH-2; MH-39.
- Verrucaria cataleptoides* (Nyl.) Nyl. MH-15; MH-22.
- Verrucaria deversa* Vainio MH-2; MH-22.
- Verrucaria muralis* Ach. MH-2.
- Verrucaria ossiseda* Lynge CP-1 on bone. This species was previously known only from Novaya Zemlya. It is new to North America. It is distinctive in its tininess, the upper part of the involucrellum partly projecting at the bone surface to form a fleck 0.005 mm broad. The involucrellum is spreading (Figure 2) and the tiny spores, small for the genus, are  $5-7 \times 1.5-2 \mu\text{m}$  and elongate ellipsoid.
- Xanthoria candelaria* (L.) Th. Fr. CP-7; CP-18.
- Xanthoria elegans* (Link.) Th. Fr. MH-2; MH-4; MH-5; MH-10; MH-15; MH-17; MH-34; CP-1 on rocks and wood, also var. *splendens* (Darbish.) Christ. ex Poelt on bones.
- Xanthoria sorediata* (Vainio) Poelt CP-1 on wood.
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